

REMARKS

Claims 1-20 are pending in the application. Claims 1, 8, 14, and 17 are independent. By the foregoing Amendment, claims 1, 8, 14, and 17 have been amended. It is believed that these changes introduce no new matter and their entry is respectfully requested.

Objection to Claim 17

In the Office Action, the Examiner objected to claim 17 citing informalities. By the foregoing Amendment, Applicant has amended claim 17 to accommodate the Examiner. Accordingly, Applicants respectfully request that the Examiner reconsider and remove the objection to claim 17.

Rejection of Claims 1-4 and 8-9 Under 35 U.S.C. §102(e)

In the Office Action, the Examiner rejected claims 1-4 and 8-9 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication No. 2004/0028099 A1 to Hongo et al. (“Hongo”). A claim is anticipated only if each and every element of the claim is found, either expressly or inherently, in a reference. (MPEP §2131 *citing Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628 (Fed. Cir. 1987)). The identical invention must be shown in as complete detail as is contained in the claim. *Id. citing Richardson v. Suzuki Motor Co.*, 868 F.2d 1226,1236 (Fed. Cir. 1989)). Applicant respectfully traverses the rejection.

Independent claim 1 recites in pertinent part “***adjusting an amount of light coupled into an optical fiber*** by: converting an optical beam emitted from a laser to a current proportional to a power of the optical beam using a monitor photodiode; adjusting the current from the monitor photodiode up or down using a thermistor and resistor network ***in response to a change in temperature affecting the optical fiber different from the laser***; and adjusting the power of the optical beam emitted from the laser” (emphasis added). Independent claim 8 recites in pertinent part “circuitry coupled to receive the current from the photodiode, the ***circuitry to adjust an amount of light coupled into an optical fiber in response to a change in temperature affecting the optical fiber different from the laser***” (emphasis added). Support for these changes according to at least one embodiment can be found in Applicant’s Specification at paragraphs [0007] and [0014].

Applicant respectfully submits that *Hongo* fails to teach the identical invention as recited in claims 1 and/or 8. For example, *Hongo* fails to teach a method or circuitry to adjust an amount of light coupled into an optical fiber in response to a change in temperature affecting the optical fiber differently from the laser. This is because *Hongo* assumes that the coupling between the laser diode 2 and the backside of the photodiode 4 is the same as the coupling between the laser diode 2 and the EA modulator 3 and the (not shown) optical fiber. In instances in which a change in temperature affects the optical fiber differently from the laser diode 2, the laser may become misaligned with the optical fiber and the assumption in *Hongo* that the coupling between the laser diode 2 and the backside of the photodiode 4 is the same as the coupling between the laser diode 2 and the EA modulator 3 is no longer valid. Thus, it does not necessarily follow that the as the temperature changes in the drive circuit 10 the coupling between the laser diode 2 and the backside of the photodiode 4 will be the same as the coupling between the laser diode 2 and the EA modulator 3 and the fiber in *Hongo*. Because *Hongo* fails to teach at least this element of claims 1 and/or 8, Applicant respectfully submits that *Hongo* fails to anticipate claims 1 and/or 8 and thus claims 1 and/or 8 are patentable over *Hongo*.

Claims 2-4 properly depend from claim 1 which Applicant submits is patentable. Accordingly, Applicant respectfully submits that claims 2-4 are patentable for at least the same reason that claim 1 is patentable. See MPEP §2143.03 (citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)). Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claims 1-4 and 8.

Rejection of Claims 5-7 Under 35 U.S.C. §103(a)

In the Office Action, the Examiner rejected claims 5-7 as unpatentable over *Hongo* in view of U.S. Patent No. 5,812,582 to Gilliland et al. (hereinafter "*Gilliland*"). To establish a *prima facie* case of obviousness, an Examiner must show that that there is some suggestion or motivation to modify a reference to arrive at the claimed invention, that there is some expectation of success, and that the cited reference teaches each and every element of the claimed invention. (MPEP §2143.) Applicant respectfully traverses the rejection. Claims 5-7 properly depend from claim 1 and as such are patentable over the art of record for at least the

same reasons that claim 1 is patentable over the art of record. Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claims 5-7.

Rejection of Claims 14-16 Under 35 U.S.C. §103(a)

In the Office Action, the Examiner rejected claims 14-16 as unpatentable over U.S. Patent No. 6,621,621 to Jones et al. (hereinafter “*Jones*”) in view of Hongo. Applicant respectfully traverses the rejection.

Amended claim 14 recites in pertinent part “*circuitry coupled to receive the current from the photodiode and to adjust an amount of light coupled into an optical fiber in response to a change in temperature affecting the optical fiber different from the laser*” (emphasis added). Support for these changes according to at least one embodiment can be found in Applicant’s Specification at paragraphs [0007] and [0014].

Applicant respectfully submits that *Jones* in view of *Hongo* fails to teach or fairly suggest each and every element of claim 14. For example, *Jones* fails to teach a method or circuitry to adjust an amount of light coupled into an optical fiber in response to a change in temperature affecting the optical fiber differently from the laser. This is because *Jones* appears to be directed to a dense wavelength division multiplexing (DWDM) amplification scheme and not to laser systems that need temperature compensation. Applicant respectfully submits that combining *Hongo* with *Jones* fails to make up for this deficiency. As discussed above, *Hongo* fails to teach a method or circuitry to adjust an amount of light coupled into an optical fiber in response to a change in temperature affecting the optical fiber differently from the laser. *Hongo* assumes that the coupling between the laser diode 2 and the backside of the photodiode 4 is the same as the coupling between the laser diode 2 and the EA modulator 3 and the (not shown) optical fiber and thus that temperature changes affect both couplings equally. Because *Jones* in view of *Hongo* fails to teach at least this element of claim 14, Applicant respectfully submits that *Jones* in view of *Hongo* fails to render claim 14 obvious and thus claim 14 is patentable over *Jones* in view of *Hongo*.

Claims 15-16 properly depend from claim 14 which Applicant submits is patentable. Accordingly, Applicant respectfully submits that claims 15-16 are patentable for at least the same reason that claim 14 is patentable. *See* MPEP §2143.03 (citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)). Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claims 14-16.

Rejection of Claims 8-9 and 11 Under 35 U.S.C. §103(a)

In the Office Action, the Examiner rejected claims 8-9 and 11 as unpatentable over U.S. Patent No. 4,876,442 to Fukushima (hereinafter “*Fukushima* in view of U.S. Patent No. 5,519,720 to Hirano (hereinafter “*Hirano*”). Applicant respectfully traverses the rejection.

Independent claim 8 recites in pertinent part “circuitry coupled to receive the current from the photodiode, the *circuitry* to adjust an amount of light coupled into an optical fiber in response to a change in temperature affecting the optical fiber different from the laser, the circuitry *including: a first resistor* having a first terminal and a second terminal, the first terminal coupled to receive the current from the photodiode” (emphasis added). Support for these changes according to at least one embodiment can be found in Applicant’s Specification at paragraphs [0007] and [0014].

In the Office Action, the Examiner states that *Fukushima* teaches a laser 3 to emit an optical beam, a photodiode 4 coupled to receive the optical beam and to convert the optical beam to a current, a thermistor 50 to adjust the current as temperature changes, an amplifier 6 and bias current supplying circuit 7 to adjust power in the optical beam. The Examiner concedes that *Fukushima* fails to teach an optical fiber or adjusting for changes in tracking but cites *Hirano* for teaching a laser that uses a fiber and adjusting for tracking problems. The Examiner then concludes that it would have been obvious to combine the laser of *Fukushima* with the fiber of *Hirano* in order to facilitate transfer of information as well as to adjust for tracing errors. Applicant respectfully disagrees.

MPEP §2143 provides that any motivation to combine reference teachings must be found in the prior art of record. For example, an Examiner may find the suggestion or motivation to

combine teachings in a reference (e.g., a U.S. Patent, inherency), in common knowledge in the art (i.e., well-known art), in established scientific principles, in art-recognized equivalents, or in legal precedent (e.g., admitted prior art). However an Examiner may not use an improper rationale for combining reference teachings. (MPEP §2145.) One such impermissible rationale is that if the proposed modification or combination of references would change the principle of operation of a reference, then such combination or modification may not be used to render the claimed invention obvious. MPEP §2143.01 (citing *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)).

Applicant respectfully submits that combining *Fukushima* with *Hirano* as the Examiner proposes would change the principle of operation of *Fukushima* and/or *Hirano*. For example, *Fukushima* appears to be directed to a laser control circuit. The problem addressed in *Fukushima* is that at higher temperatures in a laser control system the ratio of bias current to threshold current changes. That is, the gain slope of the laser diode changes with temperature. The solution proposed is a light receiving element 4 that outputs a current proportional to optical power of the laser 3, a current/voltage converting circuit 5 that converts the current from the light receiving element 4 to a voltage, and circuitry 7 to control bias current to the laser 3 so that the voltage output from the current/voltage converting circuit 5 remains constant. *Fukushima* assumes that the light received in the light receiving element 4 is linearly related to light coupled out of the laser and into an optical fiber.

Hirano appears to be directed to a semiconductor light emitting device. The problem addressed in *Hirano* is that there is tracking error between the laser chip 4 and the optical fiber 16 when the temperature changes. That is, *Hirano* assumes that there is no linear relationship between the light received coupled out of the laser chip 4 into the fiber 16 across temperature. Applicants respectfully submit that combining a reference that assumes that there is a linear relationship between light coupled out of the laser and into a fiber (*Fukushima*) with a reference whose entire premise is based on the assumption that there is no linear relationship between light coupled out of a laser and into a fiber (*Hirano*) violates the prohibition on combining references in such a manner as to change the principle of operation of one or more of the references. Because *Fukushima* in view of *Hirano* is an improper combination Applicant respectfully

submits that the Examiner has failed to make out a prima facie case of obviousness using *Fukushima* in view of *Hirano*. Applicant respectfully submits therefore that claim 8 is patentable over *Fukushima* in view of *Hirano*.

Claims 9 and 11 properly depend from claim 8 which Applicant submits is patentable. Accordingly, Applicant respectfully submits that claims 9 and 11 are patentable for at least the same reason that claim 8 is patentable. See MPEP §2143.03 (citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)). Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claims 8-9 and 11.

Rejection of Claim 10 Under 35 U.S.C. §103(a)

In the Office Action, the Examiner rejected claim 10 as unpatentable over *Fukushima* in view of *Hirano* in view of U.S. Patent No. 5,383,208 to Queniat et al. (hereinafter “*Queniat*”). Applicant respectfully traverses the rejection. Claim 10 properly depends from claim 8 and as such is patentable for at least the same reasons that claim 8 is patentable. Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claim 10.

Rejection of Claim 12 Under 35 U.S.C. §103(a)

In the Office Action, the Examiner rejected claim 12 as unpatentable over *Fukushima* in view of *Hirano* in view of *Queniat* in further view of U.S. Patent No. 6,055,251 to Ouchi et al. (hereinafter “*Ouchi*”). Applicant respectfully traverses the rejection. Claim 12 properly depends from claim 8 and as such is patentable for at least the same reasons that claim 8 is patentable. Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claim 12.

Rejection of Claim 13 Under 35 U.S.C. §103(a)

In the Office Action, the Examiner rejected claim 13 as unpatentable over *Fukushima* in view of *Hirano* in view of *Queniat* in further view of U.S. Patent No. 6,327,277 to Killian (hereinafter “*Killian*”). Applicant respectfully traverses the rejection.

Claim 13 properly depends from claim 8 and as such is patentable record for at least the same reasons that claim 8 is patentable. Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claim 13.

Rejection of Claims 17-20 Under 35 U.S.C. §103(a)

In the Office Action, the Examiner rejected claims 17-20 as unpatentable over *Fukushima* in view of *Queniat* in further view of *Gilliland*. Applicant respectfully traverses the rejection.

Independent claim 17 recites in pertinent part “circuitry coupled to receive the current from the photodiode, the *circuitry to adjust an amount of light coupled into an optical fiber in response to a change in temperature affecting the optical fiber different from the laser*” (emphasis added). Support for these changes according to at least one embodiment can be found in Applicant’s Specification at paragraphs [0007] and [0014].

In the Office Action, the Examiner states that *Fukushima* teaches a laser 3 to emit an optical beam, a photodiode 4 coupled to receive the optical beam and to convert the optical beam to a current, a thermistor 50 to adjust the current as temperature changes, an amplifier 6 and bias current supplying circuit 7 to adjust power in the optical beam. The Examiner concedes that *Fukushima* fails to teach a DAC, a current gain device, an integrator but cites *Queniat* for teaching the DAC and *Killian* for teaching an integrator. The Examiner then concludes that it would have been obvious to combine the “op-amp” input of *Fukushima* with the DAC of *Queniat* and the integrator of *Killian*. Applicant respectfully disagrees.

Applicant respectfully submits that *Fukushima* in view of *Queniat* in further view of *Gilliland* fails to teach or fairly suggest each and every element of claim 17. For example, *Fukushima* in view of *Queniat* in further view of *Gilliland* fails to teach circuitry to adjust an amount of light coupled into an optical fiber in response to a change in temperature affecting the optical fiber differently from the laser. This is because *Fukushima*, *Queniat*, and *Gilliland* all assume that changes in temperature affect the optical fiber the same as the laser and only concern themselves with the gain slope of the laser diode. Because *Fukushima* in view of *Queniat* in further view of *Gilliland* fails to teach or fairly suggest at least these elements of claim 17,

Applicant respectfully submits that *Fukushima* in view of *Queniat* in further view of *Gilliland* fails to teach or fairly suggest fails to render claim 17 obvious and thus claim 17 is patentable over *Fukushima* in view of *Queniat* in further view of *Gilliland*.

Claims 18-20 properly depend from claim 17 which Applicant submits is patentable. Accordingly, Applicant respectfully submits that claims 18-20 are patentable for at least the same reason that claim 17 is patentable. See MPEP §2143.03 (citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)). Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claims 17-20.

CONCLUSION

Applicant submits that all grounds for rejection have been properly traversed, accommodated, or rendered moot, and that the application is now in condition for allowance. The Examiner is invited to telephone the undersigned representative if the Examiner believes that an interview might be useful for any reason.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

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